Various methods are already known for monitoring and predicting traffic "congestion point" (frequently called a "moving jam"). See, for example, the automatic congestion dynamics analysis described in German patent document DE 196 47 127 A1, whose content is incorporated herein by reference, and methods known from the literature mentioned there.

Amend the paragraph bridging pages 8 and 9 as follows:

In the case of increasing traffic, and specifically at effective bottlenecks (which may be primarily stationary bottlenecks, but in some incidences may include moveable bottlenecks such as very slowly moving road-construction or road-maintenance vehicles or migrating building sites), a formerly free traffic state will frequently be initially transformed into a so-called region of synchronized traffic upstream of the bottleneck, whilst resulting (depending on further traffic) in a pattern, typical of the bottleneck, of dense traffic. In the minimum version, this pattern may comprise only the region of synchronized traffic adjoining the effective bottleneck upstream. The formation of a pinch region is also observed in the case of increasing traffic volume and/or appropriate route infrastructure. Congestion points can develop from this pinch region and propagate upstream, since it is possible for free or synchronized traffic or a pinch region to be present between each two congestion points. The region in which the widespread congestion propagates upstream (by contrast with the localized congestion occurring in pinch regions) is denoted as a region of "moving widespread congestion" (frequently called a "wide moving jam"). (See <u>e.g.</u>, B.S.

Kerner, "Experimental features of the emergence of moving jams in free flow traffic, J. of Physics A: Mathematical and General, vol. 33, pp L221-L228 (2000).)

Amend the second, third and fourth full paragraphs on page 13 as follows:

Figure 1 is a diagram which shows, for a particular point in time, a route section of a road traffic network with an effective bottleneck, and an upstream pattern of dense traffic, which comprises a region of synchronized traffic;

Figure 2 is an illustration similar to Figure 1, but for a pattern at a particular point in time of dense traffic which also includes a pinch region;

Figure 3 is an illustration includes a region of moving widespread congestion at a particular point in time;

Amend the paragraph bridging pages 26 and 27 as follows:

The development of such an overarching pattern starts at the point in time in which the upstream end of a first pattern, belonging to the said first, downstream effective bottleneck, reaches the position of the second effective bottleneck, situated closest upstream. Since the production of synchronized traffic from free traffic at each effective bottleneck is a phase transition of “first order” which arises from every interruption of the traffic which is greater than a critical interruption, the occurrence of the upstream end of the first, downstream

pattern of dense traffic can trigger this phase transition. This phase transition occurs when, depending on the traffic volume and the route infrastructure, the state of free traffic at the upstream effective bottleneck was already [unstable] metastable in any case with the result that the occurrence of the upstream end of the pattern, belonging to the first effective bottleneck, of dense traffic "triggers" the phase transition there. As a result of this phase transition, a region of synchronized traffic or a pinch region is then formed in turn farther upstream of the upstream, second effective bottleneck.

Amend the first full paragraph on page 32 as follows:

This is the reason why in the state phase of synchronized traffic a pinch region can arise in which these excess vehicles are stored in the typical temporary "narrow" congestion point. The specified criterion $Qn\text{-}Q_{smax} \geq \Delta Q_1$ for a time interval $\Delta t \geq \Delta t_1$ can therefore be used as criterion for the production of the reduced pattern form in accordance with Figures 1 and 2, and most accurately when the net influx Qn corresponds to free traffic upstream of the upstream edge $F_{F,S}$ of synchronized traffic in accordance with Figure 1 for each direction of influx and outflow.

Amend the paragraph bridging pages 32 and 33 as follows:

When the difference $Qn\text{-}Q_{smax}$ is on average above a second excess value ΔQ_2 during a period Δt greater than or equal to a second minimum period

$\Delta t2$, the second excess value ΔQ_2 being greater than the first excess value ΔQ_1 and/or the second minimum time interval Δt_2 being greater than the first minimum time interval Δt_1 it is necessary for yet more excess vehicles to be stored upstream of the localization point of the effective bottleneck, for which reason the region of moving widespread congestion arises upstream of the pinch region. In this case, the excess vehicles are stored not only in temporary narrow congestion points, but also in lasting widespread ones. This criterion can therefore be used to detect a formation of the full pattern in accordance with Figure 3, and is at its most exact when the total net influx Qn corresponds to free traffic upstream of the upstream edge $F_{F,GS}$ of the pinch region in accordance with Figure 2, once again for each direction of influx and outflow.

(Applicant's Remarks are set forth hereinbelow, starting on the following page.)